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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/761,136

01/20/2004

Stephan Neumann

MIT122178

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EXAMINER

PERILLA, JASON M

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

07/20/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/761,136

Applicant(s)

NEUMANN ET AL.

Examiner

Jason M. Perilla

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3 and 6-12 is/are allowed.
- 6) ☒ Claim(s) 4 and 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. 1, and 3-12 are pending in the instant application.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 4 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 4, the claim is indefinite because one skilled in the art is unable to determine how a register is arranged in parallel to a memory element. A parallel or series connection of a circuit element may only be defined in terms of the connections of the inputs and outputs of such elements with respect to each other. Because no connections for the memory are defined in the claim, one skilled in the art is unable to determine what would constitute a parallel arrangement of the memory with respect to the register.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4 and 5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kidd et al (U.S. Pat. No. 5329614)

Regarding claim 4, Kidd discloses a signal delaying device for the dynamic delaying of a digitally sampled input signal with a memory element and a series connected interpolation element, comprising a register (fig. 5, ref. 54) having its output side connected to the input side of the interpolation element (fig. 5, ref. 56) for the intermediate storage of at least one sampled value of the input signal (fig. 5, "Pels In") and arranged with the memory element (fig. 5, ref. 55). Kidd does not disclose that the interpolation element comprises a polyphase filter. However, the use of polyphase filters in interpolators is notoriously known in the art as evidenced by Schmidt (U.S. Pat. No. 2002/0133524). Schmidt discloses the use of a polyphase filter (fig. 4 ref. ref. 5a; ¶ 0034) in an interpolator (fig. 5, ref. 1). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made that Kidd's interpolator may be implemented, in whole or in part, by a polyphase filter as suggested by Schmidt because the use of such filters is well known and accepted in the art.

Regarding claim 5, Kidd in view of Schmidt disclose the limitations of claim 4 as applied above. Further, Schmidt discloses that interpolators may additionally utilize half-band filters (fig. 4, ref. 3) between the interpolator's input (fig. 5, "x(k)") and the interpolator's polyphase filter (fig. 5, ref. 5a). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made that Kidd's interpolator may be implemented, in whole or in part, by a polyphase filter and a half-band filter as suggested by Schmidt because the use of such filters is well known and accepted in the art.

***Allowable Subject Matter***

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6. The indication of allowable subject matter is made regarding claims 1, 3, and 6-12.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art of record not relied upon above is cited to further show the state of the art with respect to interpolating filters.

U.S. Pub. No. 2003/0142734 to Black et al.

U.S. Pub. No. 2003/0204542 to Mueller.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Perilla whose telephone number is (571) 272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jason M. Perilla  
July 10, 2007

jmp



CHIEH M. FAN  
SUPERVISORY PATENT EXAMINER